

CHARGE NUMBER: 1503  
PROGRAM TITLE: Modified Smoking Materials  
PERIOD COVERED: April 1 - 30, 1980  
PROJECT LEADER: G. D. Keritsis

## I. GAS PHASE CONTROL

The silica gel-permanganate based granular filter material was found to remove 45% of NO from smoke after five weeks of aging in cigarettes at room temperature. Such aging tests will be continued to determine the causes that deactivate the filter material. A titration method has also been developed for ascertaining the amounts of  $MnO_4^-$  and  $MnO_2$  on the granular filter material. This will permit correlation of loss of gas phase activity upon storage with the amount of residual  $MnO_4^-$  and will also permit investigation of the stoichiometry and mechanism of the interaction of NO with  $MnO_4^-$ .<sup>1</sup>

Cigarette candidates containing fillers of varying cut widths and chemical compositions (from salt casing) will soon be submitted for smoking.<sup>2</sup>

## II. RECONSTITUTED TOBACCO

Several denitration runs of Park 500 SEL/CEL combinations were made using the ED process in an effort to generate additional data needed for the economic evaluation comparison with other denitration processes.<sup>3</sup> Satisfactory runs were also made by Project 1307 personnel using the pilot plant ED unit.

An effort was made to develop technology for treating the ED brine and produce a purer  $KNO_3$  by-product while recovering desirable tobacco solubles for reapplication. The initial feasibility study indicates that the crystallization process could be applied to the concentrated ED brine (>30% solids) to recover about 60% of low in nitrate brine solubles while producing a purer  $KNO_3$  crystalline material.<sup>4</sup> The low in nitrate brine solubles could then be returned to the extensively denitrated tobacco solubles for reapplication onto the extracted tobacco. Project 1307 personnel are now scaling up this process using pilot plant equipment and quantities for a better material balance.

The initial feasibility study of recovering denitrated burley stem wash solubles for reapplication in RCB has shown no adverse effects on the RCB subjectives, chemistry of smoke and filling capacity by comparison to the standard RCB that does not utilize the burley stem wash solubles.<sup>5</sup> For this study the burley stem wash solubles were concentrated and denitrated using the ED process. A recommendation was made to repeat the feasibility study using the optimized versions of ED and anaerobic fermentation for maximum reduction of such gas phase smoke components as NO, HCN and CO.

An effort is being made to find conditions that will allow processing of stem-free tobacco dust into RCB sheet with/without the use of binder additives.<sup>6</sup>

It has been found possible to crimp RL sheet between intermeshing gears and set the crimp with a peroxide spray followed by heat treatment. The shredded material displayed about a 15% increase in CV regardless of the direction of shredding with respect to the direction of the crimps.<sup>7</sup>

2022187115

### III. REFERENCES

- <sup>1</sup> Notebook 7278, p. 139, N. B. Rainer.
- <sup>2</sup> Notebook 7395, pp. 50, 51, 59-63, 65, 66, J. W. Leik.
- <sup>3</sup> Notebook 7347, pp. 125-144, H. A. Jones.
- <sup>4</sup> Memo "Treatment of ED Brine" to K. S. Burns from G. D. Keritsis, 5/6/80.
- <sup>5</sup> Memo "Burley Stem Wash Denitration/Reapplication in RCB" to K. S. Burns from S. G. Muller, 3/7/80.
- <sup>6</sup> Notebook 7395, pp. 54-58, 64, J. W. Leik.
- <sup>7</sup> Notebook 7278, p. 139, N. B. Rainer.



G. D. Keritsis

/jb

2022187116